



T/AU00/00129

09/910274

REC'D 11 APR 2000

WIPO PCT

AU 00/129
4

Patent Office
Canberra

**PRIORITY
DOCUMENT**

SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

I, KAY WARD, TEAM LEADER EXAMINATION SUPPORT AND SALES
hereby certify that annexed is a true copy of the Provisional specification in
connection with Application No. PP 8873 for a patent by BARTLETT GRAIN
PTY LTD filed on 24 February 1999.



WITNESS my hand this
Ninth day of March 2000

Kay Ward

KAY WARD
TEAM LEADER EXAMINATION
SUPPORT AND SALES

THIS PAGE BLANK (USPTO)

COMMONWEALTH OF AUSTRALIA

PATENTS ACT 1990

ANIMAL FEED FORMULAE FOR THE NUTRITIONAL ENRICHMENT OF FOODSTUFFS

THE INVENTION IS DESCRIBED IN THE FOLLOWING STATEMENT:

ANIMAL FEED FORMULAE FOR THE NUTRITIONAL ENRICHMENT OF FOODSTUFFS

BACKGROUND

The present invention relates to nutritional enrichment of foodstuffs such as, but not limited to pork, beef, poultry and the like and more particularly relates to the use of a selection of feed formulae for feeding to animals at predetermined stages of growth and which include increased levels of omega 3 long chain fatty acids. The invention further provides feed formulae for animals which result in an increased nutritional level but without taint of the food product. Whilst the formulae of the present invention are suitable as feed for producing high nutritional quality beef and poultry (in the latter case influencing the nutritional value of poultry meat and eggs) the invention will mainly be described with reference to its application in pig feeding.

PRIOR ART

It is long established that there is a direct relationship between animal feed and the quality of food produce from a particular animal. An example of this relationship is evident where fish meal is used in pig feeding with the constituent ingredient levels of fish meal impacting on the nutritional quality of the food.

The food industry, in recognition of the desirability of lowering of saturated fats in the human diet has paid particular attention to improvement of the nutritional quality of foodstuffs and this begins with the animal feed blends. For instance, in the last ten years the average fat content of pork has been reduced by more than 50% in direct response to consumer demand for low fat diets in view of the links between high cholesterol, heart disease and a high fat diet. Animal products including pork also contain polyunsaturated fatty acids (PUFA). Pork and animal product producers have in recognition of the high nutritional benefits of long chain omega 3 PUFA and the consequent high consumer demand for foods with high yields of these nutrients have paid particular attention to the sources of these fatty acids and more particularly to ways of

fortifying foods with long chain omega 3 PUFA.

Omega 3 polyunsaturated fatty acids, like vitamins, are essential to good health but as the body cannot itself manufacture these essential acids and vitamins it must rely on food sources for the requisite supply of these necessities. Foods rich in long chain omega 3 fatty acids are generally not a regular part of the diet so most people are denied the full potential benefits of the presence of these in the diet.

Polyunsaturated fats are divided into the omega 3 and omega 6 fatty acids both of which the body needs. The effects of long chain omega 3 fatty acids on the body are significant as they are incorporated into every cell, tissue and organ including the heart and lungs, blood vessels, brain and joints.

There are a variety of food sources of long chain omega 3 fatty acids for example, Alpha - linolenic acid (ALA) occurs in oils such as canola, linseed (flaxseed), walnut and soybean as well as in green vegetables. Eicosapentaenoic acid (EPA) can be found in cod liver oil, fish oils fish and other seafoods and even in beef. Docosahexaenoic acid (DHA) is found in tuna oil, other fish oils and in breast milk.

Whilst omega 6 fatty acids are also beneficial and necessary for a good diet, the ratio of omega 6 fatty acids to omega 3 should be less than 5:1 and preferably 1:1. An excess of omega 6 acids can negate the effect of the long chain omega 3 fatty acids. Long chain Omega 3 fatty acids derived from fish

(EPA and DHA) are more potent than the short chain omega 3 derived from plants (ALA) as they are taken up directly by the cells. The evidence for the health benefits of DHA and EPA in the diet is nowhere better demonstrated than in Japanese fisherman and Eskimos who both have diets high in fish and a low incidence of heart disease. Omega 3 fatty acids also play a role in

slowing the build up of fats on the walls of blood vessels, reducing blood clotting, reducing blood pressure and decreasing arrhythmia. There is also evidence that omega 3 fatty acids can reduce risk of cancer and depression and can strengthen the immune system.

The problem for the food industry has been to determine the most effective means of introducing long chain omega 3 fatty acids into the diet without compromising the physical, textural and sensory quality of the food vehicle. Egg producers introduced long chain omega 3 fatty acids into eggs by feeding hens foods such as fish meal which are high in these acids only to discover that the eggs tasted like fish leading to a reduction in consumption of such fat modified eggs. The hens were then fed a unique vegetarian diet of natural foods that are rich in long chain omega 3 fatty acids but there are significant restrictions on how much fatty acid can be introduced due to the problem of sensory and physical taint. This is also the experience in the pork industry where fish meal has been fed to pigs to increase the level of long chain omega 3 fatty acids in consumers of pork, but the meat has also suffered from taint which significantly reduces the level of omega three fatty acids which can be introduced.

According to conventional wisdom, high intakes by pigs of fishmeal as a source of long chain omega 3 PUFA above relatively low levels 2 - 5% of the food vehicle results in pork taint manifested by decrease in oleic acid content, increase in iodine value (hence oxidizability), as well as softening of the carcass fat. Thus there has traditionally in use of PUFA been a necessary compromise between achieving an optimum nutritional value associated with use of PUFA's whilst guarding against taint from excessive use.

This has kept the use of PUFA's in pig feed to low levels primarily due to the undesirability of taint. The problems of taint and the desirability of increasing the PUFA content in the human diet has been recognised in the industry literature; [see for instance the article entitled " Omega 3

Enriched Pork" by Peter R.C. Howe].

In recognition of the benefits of long chain omega 3 PUFA, the food industry turned its attention to identifying an economic and plentiful source of these acids. Fish oil was considered an obvious source of these fatty acids and experimentation was conducted to determine the levels which could be used in pork recognising that levels above a desirable maximum, could result in taint of the pork.

An industry objective has therefore been to determine the extent of omega 3 PUFA enrichment of animal produce that could be achieved using fish meal without the problems of taint.

Experimentation found that only very low percentages 0.8 - 1.4% of fish oil could be used in the diet and it was found preferable that the use should be terminated or reduced to the lowest levels before slaughter. The experiments demonstrated that increasing fish oil intake increased the percentage of long chain omega 3 PUFA and therefore the nutritional qualities of the produce. It was also found that where diets contained 3% fish oil up to slaughter, the organoleptic quality of the pork was affected.

The industry then turned its attention to the use of fish meal as a source of long chain omega 3 PUFA for the enrichment of pork but taint of the physical and sensory qualities of the pork remained a problem. The industry currently recommends that the fish meal content of pig rations not exceed 5% and only where the fish meal is withdrawn 5 - 7 weeks before slaughter. Where the pigs are fed fish meal up to slaughter it is recommended that the level of fish meal in the diet not exceed 3%.

The conventional source of fish meal is pelagic fish, which when rendered into meal, normally has an oil content of 6%- 9% whereas according to one embodiment of the

invention fish meal from the cannery scrap of oily fish is used which produce a meal with

11%- 13% oil containing approximately one third of omega 3 fatty acids.

The applicant has for some time (in order to meet the challenge of elimination of taint) been involved in experimentation to determine fish meal formulae for feeding to animals [depending upon the stage of development of the animal to which the food blend is fed] to optimise the retention of omega 3 long chain PUFA but without taint caused by the fish meal through off flavours and rancidity of the produce.

Whilst experts in the field have postulated as to possible ways to increase the use of fish meal without taint of the produce, no one to date has succeeded in increasing the level above 3 %-5% without risk of taint of the produce. Some in the food industry advise against feeding fish meal at any time during the 14 day period before slaughter to eliminate the possibility of taint. The August 1998 issue of the organ of the Fishmeal Information Network commissioned an independant study by a pig nutritionist to review the available data on use of fish meal in feeding pigs. The study found that fish meal, provided that it does not exceed 10% oil content, can be fed at up to 7.5% of the diet without presenting any problems of taint in the end product. The findings do however recognise that for 100% security against taint, percentage levels of fish meal in the diet should be set below 7%. Thus it is generally recognised in the industry that it is undesirable to increase the percentage of fishmeal beyond 3% - 5% percent to be sure of elimination of taint.

INVENTION

The present invention seeks to ameliorate or eliminate the aforesaid problems of the prior art relating to taint in produce by providing feed formulae which optimise the level of use of fishmeal in the diet of an animal, above percentages previously achieved and without the problem of taint.

In one broad form the present invention comprises:

A fishmeal food supplement for feeding to animals which maximises the content of omega 3 long chain fatty acids in foods such as pork, lamb, eggs, poultry meat, beef and farmed fish; wherein the percentage of fishmeal of the animal's total diet is at a level which eliminates taint of the produce.

In another form the present invention comprises: a fishmeal food supplement for feeding to animals which maximises the content of omega 3 long chain fatty acids in foods such as pork, eggs poultry meat, beef and farmed fish to a level which eliminates taint of the produce; wherein the percentage of fishmeal is greater than 5% of the dietary intake of the animal.

In another form the present invention comprises: an animal feed supplement utilising fish meal as a source of omega 3 long chain fatty acids for inclusion in the diet of said animal; wherein, the fatty acids are increased to a level which maximises the nutritional value of the produce from said animal by increased level of long chain omega 3 fatty acids but without taint of said produce. Preferably, the percentage of fishmeal in the diet of the animal is greater than 5% to produce the long chain fatty acids Decosahexaenoic Acid (DHA), Docosapentaenoic acid (DPA) and Eicosapentaenoic acid (EPA).

In another form, the present invention comprises a food supplement for feeding to animals to maximise the level of long chain omega 3 fatty acids in the animal produce but without taint of the produce; wherein the supplement includes an oil based premix comprising a blend of the following ingredients;

Ethoxyquin vitamin grade
Crude palm oil
Aniseed China Star
Rosemary oil
Thyme white oil

Peppermint oil
Benzoic Acid
Phosphoric Acid 81%
Crude Canola oil Carrier.

According to one embodiment, the constituents of the oil based premix per tonne of a food base are blended in the following proportions

	kg	%
Ethoxyquin vitamin grade	0.400	4.00
Crude palm oil	1.500	15.00
Aniseed China Star	0.067	0.67
Rosemary oil	0.100	1.00
Thyme white oil	0.100	1.00
Peppermint oil	0.150	1.50
Benzoic Acid	0.005	0.05
Phosphoric Acid 81%	0.250	2.50
Crude Canola oil Carrier.	7.428	74.28
	-----	-----
	10.000	100.00
	-----	-----

In another form the present invention comprises a food supplement for feeding to animals to maximise the level of long chain omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement includes a drymix premix comprising a blend of the following ingredients;

Vitamin E 50
Vitamin C
Citric Acid
Propyl Gallate
Calcium Propionate
Wheat Meal Carrier

In another form the present invention comprises a food supplement for feeding to animals to maximise the level of long chain omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement is a drymix premix comprising the following proportion of constituents;

	kg	%
Vitamin E 50	0.800	16.00
Vitamin C	0.500	10.00
Citric Acid	0.500	10.00
Propyl Gallate	0.100	2.00
Calcium Propionate	0.500	10.00
Wheat Meal Carrier	2.600	52.00
	-----	-----
	5.000	100.00
	-----	-----

According to a preferred embodiment, the Vitamin C and Citric Acid are scavenger antioxidants.

In another broad form the present invention comprises a food supplement for feeding to animals to maximise the level of long chain omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement comprises a blend of tuna meal, an oil based premix and a drymix premix blended in the following proportions:

	kg	%
Tuna Meal	985.00	98.500
Oil based premix	10.00	1.000
Dry mix Premix	5.00	0.500
	-----	-----
	1000.00	100.000
	-----	-----

In another form the present invention comprises a food supplement for feeding to animals to maximise the level of long chain omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement comprises tuna meal, an oil based premix and a drymix premix blended the following constituents;

Tuna Meal
Ethoxyquin vitamin grade
Crude palm oil
Aniseed China Star
Rosemary oil

Thyme white oil
 Peppermint oil
 Benzoic Acid
 Phosphoric Acid 81%
 Crude Canola oil Carrier.
 Vitamin E 50
 Vitamin C
 Citric Acid
 Propyl Gallate
 Calcium Propionate
 Wheat Meal Carrier

In another broad form the present invention comprises a food supplement for feeding to animals to maximise the level of omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement comprises tuna meal, an oil based premix and a drymix premix blended the following constituents;

Tuna Meal
 Ethoxyquin vitamin grade
 Crude palm oil
 Rosemary oil
 Thyme white oil
 Peppermint oil
 Benzoic Acid
 Phosphoric Acid 81%
 Crude Canola oil Carrier.
 Vitamin E 50
 Vitamin C
 Citric Acid
 Propyl Gallate

In another broad form the present invention comprises a food supplement for feeding to animals to maximise the level of omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement comprises tuna meal, an oil based premix and a drymix premix blended the following constituents and relative proportions;

Tuna Meal (containing 11% - 13% oil)	98.500
Ethoxyquin vitamin grade	0.040
Crude palm oil	0.150
Rosemary oil	0.010

Thyme white oil	0.010
Peppermint oil	0.015
Benzoic Acid	0.001
Phosphoric Acid 81%	0.025
Crude Canola oil Carrier.	0.743
Vitamin E 50	0.080
Vitamin C	0.050
Citric Acid	0.050
Propyl Gallate	0.010

According to a preferred embodiment, the supplement further comprises the following constituent levels;

	%
Vanillic Crystals	0.013
Aniseed China Star	0.007
Calcium Propionate	0.050
Wheat Meal	0.260

In another form the present invention comprises a food supplement for feeding to animals to maximise the level of long chain omega 3 fatty acids in the animal produce and without taint of the produce; wherein the supplement comprises tuna meal, an oil based premix and a drymix premix blended in the following proportions per tonne of food base:

	kg	%
Tuna Meal	985.000	98.500
Ethoxyquin vitamin grade	0.400	0.040
Crude palm oil	1.500	0.150
Aniseed China Star	0.067	0.007
Rosemary oil	0.100	0.010
Thyme white oil	0.100	0.010
Peppermint oil	0.150	0.015
Benzoic Acid	0.005	0.001
Phosphoric Acid 81%	0.250	0.025
Crude Canola oil Carrier.	7.428	0.743
Vitamin E 50	0.800	0.080
Vitamin C	0.500	0.050
Citric Acid	0.500	0.050
Propyl Gallate	0.100	0.010
Calcium Propionate	0.500	0.050
Wheat Meal Carrier	2.600	0.260
	-----	-----
	1000.000	100.000
	-----	-----

According to the method aspect of the present invention there is provided a method of feeding animals using a fish meal based supplement with 11% - 13% fish oil at a level within the range of 10% - 20% of the animals' total diet wherein the method comprises the following steps:

- a) selecting constituents for a supplement comprising fish meal, an oil based premix and a dry mix,
- b) blending the constituents in predetermined proportions commensurate with the stage of development of the animal to which the supplement is fed,
- c) feeding said animals with the supplement such that the produce from said animals has a maximum level of long chain omega three fatty acids yet is free from taint.

According to the method aspect of the present invention there is provided a method of feeding animals using a fish meal based supplement at a level within the range of 10% - 20% of the animals' total diet the supplement comprising the following active ingredients

Tuna Meal
Ethoxyquin vitamin grade
Crude palm oil
Rosemary oil
Thyme white oil
Peppermint oil
Benzoic Acid
Phosphoric Acid 81%
Crude Canola oil Carrier.
Vitamin E 50
Vitamin C
Citric Acid
Propyl Gallate

wherein the method comprises the following steps:

- a) selecting constituents for a supplement comprising fish meal, an oil based premix and a dry mix,

b) blending the supplement in predetermined proportions commensurate with the stage of development of the animal to which the supplement is fed,

c) feeding said animals with the supplement such that the produce from said animals has a maximum level of long chain omega three fatty acids yet is free from taint.

According to a preferred embodiment the method comprises the further step prior to or after blending of the dry mix and fish meal of :

a) preparing the ingredients of said oil emulsion according to the following mixing sequence;

Crude Canola Oil
Crude Palm Oil
Phosphoric Acid 81%
Benzoic Acid
Ethoxyquin Vitamin Grade
Aniseed China Star
Rosemary Oil
Thyme White Oil
Peppermint Oil

b) high speed mixing of said ingredients to create a homogeneous stable emulsion.

According to the preferred embodiment, the method includes the following step prior to steps a) and b) last mentioned above of preparing the ingredients according to the following steps:

i) heating to above 50 degrees C to liquify the Crude palm oil;

ii) heating to above 22 degrees C to liquify the Aniseed china star

iii) heating to above 20 degrees C to liquify the Crude Canola Oil.

According to a preferred embodiment the method comprises the further step prior to or after blending of the oil emulsion and fish meal of preparing the dry mix by combining the following ingredient sequence:

Wheat Meal
Vitamin E - 50
Vitamin C
Citric Acid
Propyl Gallate
Calcium Propionate
Green Tea Powder
Vanillic Crystals

According to one embodiment of the method aspect, the Oil Emulsion may be applied by fine spray to the Fish(Tuna) meal; the Aqueous Extraction to be applied by fine spray to the Tuna meal; the dry mix to be added to the Tuna meal followed by mixing the whole to produce a homogeneous blend. Nutritional Premixes supplying the Vitamin, Mineral requirements of particular species and stage of life cycle/development may be included in the supplement to satisfy the nutritional completeness of the appropriate supplement

According to the invention, the feed supplement provides a supply of long chain fatty acids such as DHA, DPA and EPA in contrast to the short chain fatty acids which are obtained from certain vegetable sources. The long chain omega 3 fatty acids will be absorbed directly into the animal body in their existing biological form exerting beneficial physiological change and direct deposition in the blood stream, body cells and fat depots unlike the Short Chain Fatty Acids which require conversion by the animal to long chain fatty acids which is inefficient and poor yielding.

The present invention will now be described according to preferred but non limiting embodiments and with reference to various examples.

The supplement blends according to the examples to be described provide a consistent high source of omega 3 long chain fatty acids, especially DHA in animal diets to thereby increase the intake of omega 3 long chain fatty acids in the human diet. The supplement blends have been

found to eliminate taint of the resultant produce and to enhance the flavour of the produce.

Preferably, the percentage range of fishmeal with fish oil content between 11- 13 % in the diet of an animal in which omega 3 fatty acid enrichment is required is 5%-7% to 15% - 20%. Due to the blends of the supplements used, the fishmeal may be fed up to slaughter in these percentages. Detailed studies have been carried out on the carcasses of pigs fed with the supplement formula according to a regime commensurate with the stage of development of the pig.

Results of the analyses of the carcasses vary according to the site. The tables in annexure 1 set out the results of a study of the levels of long chain omega 3 fatty acids in the specified sites of pig carcasses fed with the supplements according to the invention. Annexure 2 sets out examples of the formulae of the food supplements according to embodiments of the invention. It will be apparent from the tabulated material that the supplements are adjusted to suit the stage of development of the pig.

It was found that there was a dramatic fall in the peroxide value of the fish meal after adding the base which appears to support the apparent reversal of rancidity in the treated meal. Clinical trials show a beneficial thromboxane result having the desired consequential physiological effects

It will be recognised by those skilled in the art that the compositions disclosed are examples only and that these or variations thereof may be fed to other animals such as but not limited to beef, cattle, sheep and poultry to achieve the objects of the invention and as such are therefore within the spirit and scope of the invention broadly described herein. For example, the consistency of the premixes before addition may be varied. The flavour of the system may be altered for instance using Fenugreek.

Dated this 24 day of February 1999

BARTLETT GRAIN PTY LTD

By their Patent Attorneys

WALSH & ASSOCIATES

ANNEXURE I

FORMULA PER TONNE PORCOMEGA * BASE - PORCOMEGA* SP

	kg	%
TUNA MEAL (SEAPEP)	985.00	98.500
PORCOMEGA * OIL BASED PREMIX PB 1	10.00	1.000
PORCOMEGA * DRYMIX PREMIX PB 2	5.00	0.500
	1000.00	100.000

FORMULA PER TONNE PORCOMEGA * BASE - PORCOMEGA* SP EXTENDED

	kg	%
TUNA MEAL (SEAPEP)	985.000	98.500
ETHOXYQUIN VITAMIN GRADE	0.400	0.040
CRUDE PALM OIL	1.500	0.150
ANISEED CHINA STAR	0.067	0.007
ROSEMARY OIL	0.100	0.010
THYME WHITE OIL	0.100	0.010
PEPPERMINT OIL	0.150	0.015
BENZOIC ACID	0.005	0.001
PHOSPHORIC ACID 81%	0.250	0.025
CRUDE CANOLA OIL	7.428	0.743
VITAMIN E - 50	0.800	0.080
VITAMIN C	0.500	0.050
CITRIC ACID	0.500	0.050
PROPYL GALLATE	0.100	0.010
CALCIUM PROPIONATE	0.500	0.050
WHEAT MEAL	2.600	0.260
	1000.000	100.000

COMPLETE RANGE - PORCOMEGA* PIG FEED SUPPLEMENTS.

1. PORCOMEGA * PIGLET STARTER EW SUPPLEMENT 001.#
 2. PORCOMEGA * PIGLET WEANER SUPPLEMENT 002.
 3. PORCOMEGA * PIG BREEDER SUPPLEMENT 003.
 4. PORCOMEGA * PIG BREEDER LACTATING SUPPLEMENT 004.#
 5. PORCOMEGA * PIG GROWER SUPPLEMENT 005.#
 6. PORCOMEGA * PIG FINISHER SUPPLEMENT 006.#
- # Used for trials.

7. Our Market Research confirms that Designer or Smart Foods offering an alternative and reliable source of Omega - 3 Longchain Fatty Acids, particularly DHA, will be well received by the consumer who will pay a premium for these foods.

The Omega - 3 Longchain Fatty Acids content of pork is significantly increased in Porcomega# Fed Pigs.

Analyses supplied by Prof. L.H. Storlien, Department of Biomedical Science, University of Wollongong.

Fatty Acid Profile (DHA , EPA , DPA) of Phospholipid from Three Sites (Loin, Leg, Forequarter) in 5 MALE PIGS.

LOIN (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	1.7177	0.7436	1.6755	5.035	7.044
2. Control +3%Fish Oil	4.5484	4.7766	1.2947	11.679	2.807
3.15% Seapep	5.5875	2.9664	1.6813	11.037	3.088
4.15% Porcomega	5.8751	4.2736	1.8344	12.941	2.600
5.15% Porcomega+3%Fish Oil	9.4645	3.0052	0.7113	13.181	2.219

LEG (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	1.2720	0.5703	1.0655	4.2150	9.933
2. Control +3%Fish Oil	6.6598	4.8659	1.4591	13.309	1.943
3.15% Seapep	6.2464	1.9129	2.0729	11.376	2.994
4.15% Porcomega	8.5052	3.0288	1.0103	12.544	2.165
5.15% Porcomega+3%Fish Oil	7.5433	5.6210	0.0000	13.164	2.204

FOREQUARTER (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	1.1029	0.6498	0.8971	3.655	10.430
2. Control +3%Fish Oil	6.3329	5.6516	1.5256	14.293	2.160
3.15% Seapep	6.7154	0.5542	1.6361	10.189	3.234
4.15% Porcomega	7.5528	4.6347	0.1816	13.381	2.349
5.15% Porcomega+3%Fish Oil	8.3222	5.0940	0.0000	13.332	1.889

Fatty Acid Profile (DHA , EPA , DPA) of Phospholipid from Three Sites
(Loin, Leg, Forequarter) in 5 FEMALE PIGS.

LOIN (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	2.7958	1.5085	1.5652	6.941	5.439/
2. Control +3%Fish Oil	6.4429	6.2143	1.9654	15.564	1.839
3.15% Seapep	6.1195	3.9108	1.9291	12.545	2.626
4.15% Porcomega	6.3399	6.9938	2.3628	16.132	2.018
5.15% Porcomega+3%Fish Oil	7.6822	7.3558	1.8541	17.537	1.673

LEG (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	6.1232	5.8691	2.2146	15.203	1.878?
2. Control +3%Fish Oil	7.1904	6.0016	2.2935	16.605	1.792
3.15% Scapep	6.1020	3.8638	2.1373	12.721	2.895
4.15% Porcomega	4.9871	6.3401	1.9790	13.853	2.366?
5.15% Porcomega+3%Fish Oil	7.4001	7.1993	1.9763	17.173	1.847

FOREQUARTER (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	2.5953	1.0582	1.4892	6.152	6.138
2. Control +3%Fish Oil	5.4446	4.9053	2.2387	13.654	2.287
3.15% Seapep	6.6192	3.2957	2.5890	13.399	2.625
4.15% Porcomega	5.8830	5.3116	2.6657	14.786	2.270
5.15% Porcomega+3%Fish Oil	8.3784	6.0343	2.3554	17.598	1.767

Fatty Acid Profile (DHA , EPA , DPA) of Triglyceride from Three Sites
(Loin, Leg, Forequarter) in 5 MALE PIGS.

LOIN (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	0.3949	0.0000	0.1557	0.740	11.041
2. Control +3%Fish Oil	4.2856	1.3361	0.6500	6.673	1.861
3.15% Seapep	1.3639	0.2781	0.1501	1.792	3.222
4.15% Porcomega	1.5530	0.3823	0.1366	2.072	2.720
5.15% Porcomega+3%Fish Oil	1.7744	0.5098	0.2049	2.608	1.509

LEG (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	0.1890	0.0000	0.0580	0.247	33.905
2. Control +3%Fish Oil	3.5885	1.0168	0.4109	5.321	1.652
3.15% Seapep	2.0899	0.5125	0.0810	2.683	2.613
4.15% Porcomega	0.9962	0.2735	0.1032	1.373	2.850
5.15% Porcomega+3%Fish Oil	2.2693	0.4464	0.2597	3.154	1.754

FOREQUARTER (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	0.6877	0.0000	0.0838	0.772	17.954
2. Control +3%Fish Oil	3.5590	1.5386	0.0000	5.098	2.260
3.15% Seapep	1.2583	0.3070	0.1963	1.762	3.046
4.15% Porcomega	1.5739	0.5492	0.0943	2.217	2.452
5.15% Porcomega+3%Fish Oil	3.0099	0.6616	0.5266	4.504	1.341

Fatty Acid Profile (DHA , EPA , DPA) of Triglyceride from Three Sites
(Loin, Leg, Forequarter) in 5 FEMALE PIGS.

LOIN (as % of Fat)

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	0.2110	0.0519	0.1273	0.585	20.546
2. Control +3%Fish Oil	0.8181	0.2441	0.3250	1.684	1.844
3.15% Seapep	0.6097	0.0000	0.0000	0.610	3.061
4.15% Porcomega	0.8410	0.3872	0.0000	1.228	3.070
5.15% Porcomega+3%Fish Oil	0.7166	0.2839	1.1113	2.111	0.892

LEG (as % of Fat)?

DIET	DHA	EPA	DPA	Total n-3	n6/n3
1. Control	1.1683	0.2837	0.4642	0.720	1.891
2. Control +3%Fish Oil	0.0000	0.0823	0.0000	0.321	1.652
3.15% Seapep	2.0899	0.5125	0.0810	2.683	2.613
4.15% Porcomega	0.9962	0.2735	0.1032	1.373	2.850
5.15% Porcomega+3%Fish Oil	2.2693	0.4464	0.2597	3.154	1.754

ANNEXURE 2

1. FORMULA PER TONNE PORCOMEGA* PIGLET STARTER EW 001

	kg	%
PORCOMEGA* BASE- SP	970.80	97.080
VITAMIN PREMIX PV 001	2.50	0.250
MINERAL PREMIX PM 001	10.00	1.000
AMINO ACID PREMIX PAA 001	10.00	1.000
CHOLINE CHLORIDE 60%	6.70	0.670
	1000.00	100.000

USAGE :- 150 KG PER TONNE OF PIGLET STARTER EW DIET.

1. PIG STARTER EW VITAMIN PREMIX PV 001

COMPOSITION	POTENCY/GM	FORMULA	ACTIVE /Kg PREMIX
INGREDIENT			
VITAMIN A-500	500,000 IU	53.60 gm	26,800,000 IU
VITAMIN D3-500	500,000 IU	13.40 gm	6,700,000 IU
VITAMIN E-50%	500 IU	52.80 gm	26,400 IU
VITAMIN K3	1000 mg	4.02 gm	4.02 gm
THIAMINE HYDROCHLORIDE USP	892 mg	4.51 gm	4.02 gm
RIBOFLAVIN 95% F.G.	950 mg	11.28 gm	10.72 gm
PYRIDOXINE USP	823 mg	6.51 gm	5.36 gm
VITAMIN B12-SUPPLEMENT 1%	10 mg	5.36 gm	53.60 mg
NIACIN USP	990 mg	54.14 gm	53.60 gm
CALCIUM D-PANTOTHENATE USP	920 mg	34.96 gm	32.16 gm
FOLIC ACID USP	920 mg	4.37 gm	4.02 gm
D-BIOTIN SUPPLEMENT 1%	10 mg	21.44 gm	214.40 mg
GREEN TEA POWDER - Anti Oxidant	1000 mg	120.00 gm	120.00 gm
VANILLIC CRYSTALS	1000 mg	53.60 gm	53.60 gm
WHEAT MEAL CARRIER		560.01 gm	
		1000.00 gm	

USAGE: 2.5 Kg per Tonne Porcomega* Pig Starter EW Supplement 001.

PIG STARTER EW- PORCOMEGA* AND COMPLETE FEED VITAMIN ADDITION

COMPOSITION	ACTIVE	ACTIVE
-----	-----	-----
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
-----	-----	-----
VITAMIN A-500	67,000,000 IU	10,000 IU
VITAMIN D3-500	16,750,000 IU	2,500 IU
VITAMIN E-50%	466,000 IU	69.5 IU
VITAMIN K3	10.05 gm	1.50 mg
THIAMINE HYDROCHLORIDE USP	10.05 gm	1.50 mg
RIBOFLAVIN 95% F.G.	26.80 gm	4.00 mg
PYRIDOXINE USP	13.40 gm	2.00 mg
VITAMIN B12-SUPPLEMENT 1%	134.00 mg	20.00 mcg
NIACIN USP	134.00 gm	20.00 mg
CALCIUM d-PANTOTHENATE USP	80.40 gm	12.00 mg
FOLIC ACID USP	10.05 gm	1.50 mg
D-BIOTIN SUPPLEMENT 1%	536.00 mg	80.00 mcg
CHOLINE CHLORIDE	4020.00 gm	600.00 mg
GREEN TEA POWDER	300.00 gm	44.77 mg
VANILLIC CRYSTALS	134.00 gm	20.00 mg

PIG STARTER EW MINERAL PREMIX-PM 001

COMPOSITION	ACTIVE		
-----	-----		
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
-----	-----	-----	-----
FERROUS SULPHATE (Fe SO ₄ .H ₂ O)	310.0 mg	216.125 gm	67.000 gm
ZINC SULPHATE	360.0 mg	186.110 gm	67.000 gm
MANGANESE SULPHATE (Mn SO ₄ .H ₂ O)	280.0 mg	95.715 gm	26.800 gm
POTASSIUM IODIDE(STAB)	68.8 mg	0.488 gm	0.335 gm
COBALT CARBONATE	460.0 mg	0.728 gm	0.335 gm
COPPER SULPHATE	250.0 mg	335.000 gm	83.750 gm
SODIUM SELENITE	400.0 mg	0.504 gm	0.201 gm
LIMESTONE CARRIER	1000.0 mg	165.330 gm	165.330 gm
		1000.000 gm	

USAGE: 10 Kg per Tonne Porcomega* Pig Starter EW Supplement 001.

PIG STARTER EW PORCOMEGA* AND COMPLETE FEED MINERAL ADDITIO

COMPOSITION	ACTIVE	ACTIVE
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
FERROUS SULPHATE-Fe (Fe SO ₄ .H ₂ O)	670.00 gm	100.500 mg
ZINC SULPHATE-Zn	670.00 gm	100.500 mg
MANGANESE SULPHATE-Mn (Mn SO ₄ .H ₂ O)	268.00 gm	40.200 mg
POTASSIUM IODIDE(STAB)-I	3.35 gm	0.502 mg
COBALT CARBONATE-Co	3.35 gm	0.502 mg
COPPER SULPHATE-Cu	837.50 gm	125.625 mg
SODIUM SELENITE-Se	2.01 gm	0.301 mg

PIGLET STARTER EW AMINO ACID PREMIX PAA OOI

COMPOSITION	FORMULA	/Kg PREMIX
INGREDIENT		
I-LYSINE	6700.00 gm	670.00 gm
dl-METHIONINE	1340.00 gm	134.00 gm
THREONINE	1340.00 gm	134.00 gm
WHEAT MEAL CARRIER	620.00 gm	
	10000.00 gm	

USAGE :- 10 KG PER TONNE OF PORCOMEGA* PIGLET STARTER EW 001.

AMINO ACID ADDITIONS	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
I-LYSINE	6700.00 gm	1000.00 mg
dl-METHIONINE	1340.00 gm	200.00 mg
THREONINE	1340.00 gm	200.00 mg

PORCOMEGA* PIGLET STARTER EW SUPPLEMENT 001

 THEORETICAL ANALYSES TBA - *Needs recent analysis of fish meal.*

D.E. KJ/Kg	CALCIUM %
CRUDE FIBRE %	PHOSPHORUS (Total) %
CRUDE PROTEIN %	
CRUDE FAT %	
LYSINE (Total) %	
LYSINE (Avail) %	
METHIONINE %	
METH. + CYSTINE %	
ARGININE %	
GLYCINE %	
ISOLEUCINE %	
LEUCINE %	
THREONINE %	
TRYPTOPHAN %	
HISTIDINE %	
PHENYLALANINE %	
PHENYL.+ TYROSINE %	
SERINE %	
VALINE %	
FATTY ACIDS	

LINOLEIC ACID %	
LINOLENIC ACID %	
w-3	

EPA %	
DHA %	

2. FORMULA PER TONNE PORCOMEGA* PIG WEANER 002

	kg	%
PORCOMEGA* BASE SP	970.80	97.080
VITAMIN PREMIX PV 002	2.50	0.250
MINERAL PREMIX PM 002	10.00	1.000
AMINO ACID PREMIX PAA 002	10.00	1.000
CHOLINE CHLORIDE 60%	6.70	0.670
	-----	-----
	1000.00	100.000
	-----	-----

USAGE :- 150 KG PER TONNE OF PIG WEANER DIET 002.

2. PIG WEANER VITAMIN PREMIX PV 002

COMPOSITION	ACTIVE		
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
VITAMIN A-500	500,000 IU	53.60 gm	26,800,000 IU
VITAMIN D3-500	500,000 IU	13.40 gm	6,700,000 IU
VITAMIN E-50%	500 IU	52.80 gm	26,400 IU
VITAMIN K3	1000 mg	4.02 gm	4.02 gm
THIAMINE HYDROCHLORIDE USP	892 mg	3.00 gm	2.68 gm
RIBOFLAVIN 95% F.G.	950 mg	9.87 gm	9.38 gm
PYRIDOXINE USP	823 mg	4.88 gm	4.02 gm
VITAMIN B12-SUPPLEMENT 1%	10 mg	4.69 gm	46.90 mg
NIACIN USP	990 mg	40.61 gm	40.20 gm
CALCIUM d-PANTOTHENATE USP	920 mg	34.96 gm	32.16 gm
FOLIC ACID USP	920 mg	4.37 gm	4.02 gm
D-BIOTIN SUPPLEMENT 1%	10 mg	13.40 gm	134.00 mg
GREEN TEA POWDER		120.00 gm	120.00 gm
VANILLIC CRYSTALS	1000 mg	53.60 gm	53.60 gm
WHEAT MEAL CARRIER		580.07 gm	
		1000.00 gm	

USAGE: 2.5 Kg per Tonne Porcomega* Pig Weaner Supplement 002.

PIG WEANER- PORCOMEGA* AND COMPLETE FEED VITAMIN ADDITION

COMPOSITION	ACTIVE	
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
VITAMIN A-500	67,000,000 IU	10,000 IU
VITAMIN D3-500	16,750,000 IU	2,500 IU
VITAMIN E-50%	466,000 IU	69.5 IU
VITAMIN K3	10.05 gm	1.50 mg
THIAMINE HYDROCHLORIDE USP	6.70 gm	1.00 mg
RIBOFLAVIN 95% F.G.	23.45 gm	3.50 mg
PYRIDOXINE USP	10.05 gm	1.50 mg
VITAMIN B12-SUPPLEMENT 1%	117.25 mg	17.50 mcg
NIACIN USP	100.50 gm	15.00 mg
CALCIUM d-PANTOTHENATE USP	67.00 gm	10.00 mg
FOLIC ACID USP	10.05 gm	1.50 mg
D-BIOTIN SUPPLEMENT 1%	335.00 mg	50.00 mcg
CHOLINE CHLORIDE	3350.00 gm	500.00 mg
GREEN TEA POWDER	300.00 gm	44.77 mg
VANILLIC CRYSTALS	134.00 gm	20.00 mg

PIG WEANER MINERAL PREMIX PM 002

COMPOSITION		ACTIVE	
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
FERROUS SULPHATE (Fe SO ₄ .H ₂ O)	310.0 mg	216.125 gm	67.000 gm
ZINC SULPHATE	360.0 mg	186.110 gm	67.000 gm
MANGANESE SULPHATE (Mn SO ₄ .H ₂ O)	280.0 mg	95.715 gm	26.800 gm
POTASSIUM IODIDE(STAB)	68.8 mg	0.488 gm	0.335 gm
COBALT CARBONATE	460.0 mg	0.728 gm	0.335 gm
COPPER SULPHATE	250.0 mg	335.000 gm	83.750 gm
SODIUM SELENITE	400.0 mg	0.504 gm	0.201 gm
LIMESTONE CARRIER	1000.0 mg	165.330 gm	165.330 gm
		1000.000 gm	

USAGE: 10 Kg per Tonne Porcomega* Pig Weaner Supplement 002.

PIG WEANER PORCOMEGA* AND COMPLETE FEED MINERAL ADDITION

COMPOSITION	ACTIVE	
	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
FERROUS SULPHATE-Fe (Fe SO ₄ .H ₂ O)	670.00 gm	100.500 mg
ZINC SULPHATE-Zn	670.00 gm	100.500 mg
MANGANESE SULPHATE-Mn (Mn SO ₄ .H ₂ O)	268.00 gm	40.200 mg
POTASSIUM IODIDE(STAB)-I	3.35 gm	0.502 mg
COBALT CARBONATE-Co	3.35 gm	0.502 mg
COPPER SULPHATE-Cu	837.50 gm	125.625 mg
SODIUM SELENITE-Se	2.01 gm	0.301 mg

13.

PIGLET WEANER AMINO ACID PREMIX PAA 002

COMPOSITION ----- INGREDIENT -----	FORMULA -----	/Kg PREMIX -----
I-LYSINE	6700.00 gm	670.00 gm
dl-METHIONINE	1340.00 gm	134.00 gm
THREONINE	1340.00 gm	134.00 gm
WHEAT MEAL CARRIER	620.00 gm	
	----- 10000.00 gm -----	

USAGE:- 10 KG PER TONNE OF PORCOMEGA* PIG WEANER SUPPLEMENT.

PIG WEANER AMINO ACID PREMIX PAA 002

AMINO ACID ADDITIONS -----	/Tonne PORCOMEGA* -----	/Kg COMPLETE FEED -----
I-LYSINE	6700.00 gm	1000.00 mg
dl-METHIONINE	1340.00 gm	200.00 mg
THREONINE	1340.00 gm	200.00 mg

PORCOMEGA* PIGLET WEANER SUPPLEMENT 002

THEORETICAL ANALYSES TBA

D.E. KJ/Kg	CALCIUM %
CRUDE FIBRE %	PHOSPHORUS (Total) %
CRUDE PROTEIN %	
CRUDE FAT %	
LYSINE (Total) %	
LYSINE (Avail) %	
METHIONINE %	
METH. + CYSTINE %	
ARGININE %	
GLYCINE %	
ISOLEUCINE %	
LEUCINE %	
THREONINE %	
TRYPTOPHAN %	
HISTIDINE %	
PHENYLALANINE %	
PHENYL.+ TYROSINE %	
SERINE %	
VALINE %	
FATTY ACIDS	

LINOLEIC ACID %	
LINOLENIC ACID %	
w-3	

EPA %	
DHA %	

3. FORMULA PER TONNE PORCOMEGA* PIG BREEDER 003

	kg	%
	-----	-----
PORCOMEGA* BASE SP	987.50	98.750
VITAMIN PREMIX PV 003	2.50	0.250
MINERAL PREMIX PM 003	10.00	1.000
	-----	-----
	1000.00	100.000
	-----	-----

USAGE :- 150 KG PER TONNE OF PIG BREEDER DIET 003.

3. PIG BREEDER VITAMIN PREMIX PV 003

COMPOSITION	ACTIVE		
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
VITAMIN A-500	500,000 IU	53.60 gm	26,800,000 IU
VITAMIN D3-500	500,000 IU	5.36 gm	2,680,000 IU
VITAMIN E-50%	500 IU	134.00 gm	67,000 IU
VITAMIN K3	1000 mg	10.05 gm	10.05 gm
THIAMINE HYDROCHLORIDE USP	892 mg	4.51 gm	4.02 gm
RIBOFLAVIN 95% F.G.	950 mg	14.11 gm	13.40 gm
PYRIDOXINE USP	823 mg	4.88 gm	4.02 gm
VITAMIN B12-SUPPLEMENT 1%	10 mg	4.02 gm	40.20 mg
NIACIN USP	990 mg	54.14 gm	53.60 gm
CALCIUM d-PANTOTHENATE USP	920 mg	29.13 gm	26.80 gm
FOLIC ACID USP	920 mg	2.91 gm	2.68 gm
D-BIOTIN SUPPLEMENT 1%	10 mg	53.60 gm	536.00 mg
GREEN TEA POWDER		120.00 gm	120.00 gm
VANILLIC CRYSTALS	1000 mg	13.40 gm	13.40 gm
WHEAT MEAL CARRIER		496.29 gm	
		1000.00 gm	

USAGE: 2.5 Kg per Tonne Porcomega* Pig Breeder Supplement.

PIG BREEDER- PORCOMEGA* AND COMPLETE FEED VITAMIN ADDITION

COMPOSITION	ACTIVE	ACTIVE
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
VITAMIN A-500	67,000,000 IU	10,000 IU
VITAMIN D3-500	6,700,000 IU	1,000 IU
VITAMIN E-50%	167,500 IU	25.0 IU
VITAMIN K3	10.05 gm	1.50 mg
THIAMINE HYDROCHLORIDE USP	10.05 gm	1.50 mg
RIBOFLAVIN 95% F.G.	33.50 gm	5.00 mg
PYRIDOXINE USP	10.05 gm	1.50 mg
VITAMIN B12-SUPPLEMENT 1%	75.00 mg	15.00 mcg
NIACIN USP	134.00 gm	20.00 mg
CALCIUM d-PANTOTHENATE USP	67.00 gm	10.00 mg
FOLIC ACID USP	6.70 gm	1.00 mg
D-BIOTIN SUPPLEMENT 1%	134.00 mg	200.00 mcg
CHOLINE CHLORIDE	2010.00 gm	300.00 mg
GREEN TEA POWDER	300.00 gm	44.77 mg
VANILLIC CRYSTALS	33.50 gm	5.00 mg

PIG BREEDER MINERAL PREMIX PM 003

COMPOSITION			ACTIVE
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
FERROUS SULPHATE (Fe SO ₄ .H ₂ O)	310.0 mg	216.125 gm	67.000 gm
ZINC SULPHATE	360.0 mg	186.110 gm	67.000 gm
MANGANESE SULPHATE (Mn SO ₄ .H ₂ O)	280.0 mg	95.715 gm	26.800 gm
POTASSIUM IODIDE(STAB)	68.8 mg	0.488 gm	0.335 gm
COBALT CARBONATE	460.0 mg	0.728 gm	0.335 gm
COPPER SULPHATE	250.0 mg	13.400 gm	3.350 gm
SODIUM SELENITE	400.0 mg	0.251 gm	0.101 gm
LIMESTONE CARRIER	1000.0 mg	487.183 gm	
		1000.000 gm	

USAGE: 10 Kg per Tonne Porcomega* Pig Breeder Supplement 003.

PIG BREEDER PORCOMEGA* AND COMPLETE FEED MINERAL ADDITION

COMPOSITION	ACTIVE	ACTIVE
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
FERROUS SULPHATE-Fe (Fe SO ₄ .H ₂ O)	670.00 gm	100.500 mg
ZINC SULPHATE-Zn	670.00 gm	100.500 mg
MANGANESE SULPHATE-Mn (Mn SO ₄ .H ₂ O)	268.00 gm	40.200 mg
POTASSIUM IODIDE(STAB)-I	3.35 gm	0.502 mg
COBALT CARBONATE-Co	3.35 gm	0.502 mg
COPPER SULPHATE-Cu	33.50 gm	5.000 mg
SODIUM SELENITE-Se	1.01 gm	0.150 mg

USAGE:- 10 Kg per Tonne Porcomega* Pig Breeder Supplement.

PORCOMEGA* PIG BREEDER SUPPLEMENT 003

THEORETICAL ANALYSES TBA

D.E. KJ/Kg	CALCIUM %
CRUDE FIBRE %	PHOSPHORUS (Total) %
CRUDE PROTEIN %	
CRUDE FAT %	
LYSINE (Total) %	
LYSINE (Avail) %	
METHIONINE %	
METH. + CYSTINE %	
ARGININE %	
GLYCINE %	
ISOLEUCINE %	
LEUCINE %	
THREONINE %	
TRYPTOPHAN %	
HISTIDINE %	
PHENYLALANINE %	
PHENYL.+ TYROSINE %	
SERINE %	
VALINE %	
FATTY ACIDS	

LINOLEIC ACID %	
LINOLENIC ACID %	
w-3	

EPA %	
DHA %	

4. FORMULA PER TONNE PORCOMEGA* PIG BREEDER LACTATING 004 #

	kg	%
PORCOMEGA* BASE SP	984.15	98.415
VITAMIN PREMIX PV 004	2.50	0.250
MINERAL PREMIX PM 004	10.00	1.000
CHOLINE CHLORIDE 60%	3.35	0.335
	1000.00	100.000
	-----	-----

USAGE :- 150 KG PER TONNE OF PIG BREEDER LACTATING DIET 004.

 PIG BREEDER LACTATING VITAMIN PREMIX PV 004

COMPOSITION			ACTIVE
-----			-----
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
-----	-----	-----	-----
VITAMIN A-500	500,000 IU	53.60 gm	26,800,000 IU
VITAMIN D3-500	500,000 IU	5.36 gm	2,680,000 IU
VITAMIN E-50%	500 IU	134.00 gm	67,000 IU
VITAMIN K3	1000 mg	10.05 gm	10.05 gm
THIAMINE HYDROCHLORIDE USP	892 mg	4.51 gm	4.02 gm
RIBOFLAVIN 95% F.G.	950 mg	14.11 gm	13.40 gm
PYRIDOXINE USP	823 mg	4.88 gm	4.02 gm
VITAMIN B12-SUPPLEMENT 1%	10 mg	4.02 gm	40.20 mg
NIACIN USP	990 mg	54.14 gm	53.60 gm
CALCIUM d-PANTOTHENATE USP	920 mg	29.13 gm	26.80 gm
FOLIC ACID USP	920 mg	2.91 gm	2.68 gm
D-BIOTIN SUPPLEMENT 1%	10 mg	53.60 gm	536.00 mg
GREEN TEA POWDER		120.00 gm	120.00 gm
VANILLIC CRYSTALS	1000 mg	13.40 gm	13.40 gm
WHEAT MEAL CARRIER		496.29 gm	

		1000.00 gm	

USAGE: 2.5 Kg per Tonne Porcomega* Pig Breeder Lactating Supplement.

 PIG BREEDER LACTATING- PORCOMEGA* AND COMPLETE FEED VITAMIN
 ADDITION

COMPOSITION	ACTIVE	ACTIVE
-----	-----	-----
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
-----	-----	-----
VITAMIN A-500	67,000,000 IU	10,000 IU
VITAMIN D3-500	6,700,000 IU	1,000 IU
VITAMIN E-50%	167,500 IU	25.0 IU
VITAMIN K3	10.05 gm	1.50 mg
THIAMINE HYDROCHLORIDE USP	10.05 gm	1.50 mg
RIBOFLAVIN 95% F.G.	33.50 gm	5.00 mg
PYRIDOXINE USP	10.05 gm	1.50 mg
VITAMIN B12-SUPPLEMENT 1%	75.00 mg	15.00 mcg
NIACIN USP	134.00 gm	20.00 mg
CALCIUM d-PANTOTHENATE USP	67.00 gm	10.00 mg
FOLIC ACID USP	6.70 gm	1.00 mg
D-BIOTIN SUPPLEMENT 1%	134.00 mg	200.00 mcg
GREEN TEA POWDER	300.00 gm	44.77 mg
VANILLIC CRYSTALS	33.50 gm	5.00 mg

19.

 PIG BREEDER LACTATING MINERAL PREMIX PM 004

COMPOSITION			ACTIVE
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
FERROUS SULPHATE (Fe SO ₄ .H ₂ O)	310.0 mg	216.125 gm	67.000 g
ZINC SULPHATE	360.0 mg	186.110 gm	67.000 g
MANGANESE SULPHATE (Mn SO ₄ .H ₂ O)	280.0 mg	95.715 gm	26.800 g
POTASSIUM IODIDE(STAB)-I	68.8 mg	0.488 gm	0.335 g
COBALT CARBONATE	460.0 mg	0.728 gm	0.335 g
COPPER SULPHATE	250.0 mg	13.400 gm	3.350 g
SODIUM SELENITE	400.0 mg	0.251 gm	0.101 g
LIMESTONE CARRIER	1000.0 mg	487.183 gm	
		1000.000 gm	

USAGE: 10 Kg per Tonne Porcomega* Pig Breeder Lactating Supplement.

 PIG BREEDER LACTATING PORCOMEGA* AND COMPLETE FEED MINERAL
 ADDITION

COMPOSITION	ACTIVE	ACTIVE
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
FERROUS SULPHATE-Fe (Fe SO ₄ .H ₂ O)	670.00 gm	100.500 mg
ZINC SULPHATE-Zn	670.00 gm	100.500 mg
MANGANESE SULPHATE-Mn (Mn SO ₄ .H ₂ O)	268.00 gm	40.200 mg
POTASSIUM IODIDE(STAB)-I	3.35 gm	0.502 mg
COBALT CARBONATE-Co	3.35 gm	0.502 mg
COPPER SULPHATE-Cu	33.50 gm	5.000 mg
SODIUM SELENITE-Se	1.01 gm	0.150 mg

USAGE: -10 Kg per Tonne Porcomega* Pig Breeder Lactating Supplement.

PORCOMEGA* PIG BREEDER LACTATING SUPPLEMENT 004

THEORETICAL ANALYSES TBA

D.E. KJ/Kg	CALCIUM %
CRUDE FIBRE %	PHOSPHORUS (Total) %
CRUDE PROTEIN %	
CRUDE FAT %	
LYSINE (Total) %	
LYSINE (Avail) %	
METHIONINE %	
METH. + CYSTINE %	
ARGININE %	
GLYCINE %	
ISOLEUCINE %	
LEUCINE %	
THREONINE %	
TRYPTOPHAN %	
HISTIDINE %	
PHENYLALANINE %	
PHENYL.+ TYROSINE %	
SERINE %	
VALINE %	
FATTY ACIDS	

LINOLEIC ACID %	
LINOLENIC ACID %	
w-3	

EPA %	
DHA %	

5. FORMULA PER TONNE PORCOMEGA* PIG GROWER 005 #

	kg	%
PORCOMEGA* BASE SP	987.50	97.080
VITAMIN PREMIX PV 005	2.50	0.250
MINERAL PREMIX PM 005	10.00	1.000
	-----	-----
	1000.00	100.000
	-----	-----

USAGE :- 150 KG PER TONNE OF PIG GROWER DIET 005.

PIG GROWER VITAMIN PREMIX PV 005

COMPOSITION			ACTIVE
INGREDIENT	POTENCY/GM	FORMULA	/Kg PREMIX
VITAMIN A-500	500,000 IU	40.20 gm	20,100,000 IU
VITAMIN D3-500	500,000 IU	8.04 gm	4,020,000 IU
VITAMIN E-50%	500 IU	53.60 gm	26,800 IU
VITAMIN K3	1000 mg	2.68 gm	2.68 gm
THIAMINE HYDROCHLORIDE USP	892 mg	3.00 gm	2.68 gm
RIBOFLAVIN 95% F.G.	950 mg	7.05 gm	6.70 gm
PYRIDOXINE USP	823 mg	4.88 gm	2.68 gm
VITAMIN B12-SUPPLEMENT 1%	10 mg	2.68 gm	26.80 mg
NIACIN USP	990 mg	27.07 gm	26.80 gm
CALCIUM d-PANTOTHENATE USP	920 mg	23.30 gm	21.44 gm
FOLIC ACID USP	920 mg	1.46 gm	1.34 gm
D-BIOTIN SUPPLEMENT 1%	10 mg	13.40 gm	134.00 mg
GREEN TEA POWDER	1000 mg	120.00 gm	120.00 gm
VANILLIC CRYSTALS	1000 mg	6.70 gm	6.70 gm
		760.40 gm	
WHEAT MEAL CARRIER		1000.00 gm	

USAGE: 2.5 Kg per Tonne Porcomega* Pig Grower Supplement 005.

PIG GROWER - PORCOMEGA* AND COMPLETE FEED VITAMIN ADDITION

COMPOSITION		ACTIVE	ACTIVE
INGREDIENT		/Tonne PORCOMEGA*	/Kg COMPLETE FEED
VITAMIN A-500	50,250,000 IU		7.538 IU
VITAMIN D3-500	10,050,000 IU		1,508 IU
VITAMIN E-50%	67,000 IU		10 IU
VITAMIN K3	6.70 gm		1.00 mg
THIAMINE HYDROCHLORIDE USP	6.70 gm		1.00 mg
RIBOFLAVIN 95% F.G.	16.75 gm		2.51 mg
PYRIDOXINE USP	6.70 gm		1.00 mg
VITAMIN B12-SUPPLEMENT 1%	67.00 mg		10.05 mcg
NIACIN USP	67.00 gm		10.05 mg
CALCIUM d-PANTOTHENATE USP	53.60 gm		8.04 mg
FOLIC ACID USP	3.35 gm		0.50 mg
D-BIOTIN SUPPLEMENT 1%	335.00 mg		50.25 mcg
GREEN TEA POWDER	300.00 gm		45.00 gm
VANILLIC CRYSTALS	16.75 gm		2.51 mg

PIG GROWER MINERAL PREMIX PM 005

COMPOSITION

INGREDIENT	POTENCY/GM	FORMULA	ACTIVE /Kg PREMIX
FERROUS SULPHATE (Fe SO ₄ .H ₂ O)	310.0 mg	216.125 gm	67.000 gm
ZINC SULPHATE	360.0 mg	186.110 gm	67.000 gm
MANGANESE SULPHATE (Mn SO ₄ .H ₂ O)	280.0 mg	95.715 gm	26.800 gm
POTASSIUM IODIDE(STAB)	68.8 mg	0.488 gm	0.335 gm
COBALT CARBONATE	460.0 mg	0.728 gm	0.335 gm
COPPER SULPHATE	250.0 mg	13.400 gm	3.350 gm
SODIUM SELENITE	400.0 mg	0.251 gm	0.101 gm
LIMESTONE CARRIER	1000.0 mg	487.183 gm	487.183 gm
		1000.000 gm	

USAGE: 10 Kg per Tonne Porcomega* Pig Grower Supplement 005.

PIG GROWER PORCOMEGA* AND COMPLETE FEED MINERAL ADDITION

COMPOSITION	ACTIVE	ACTIVE
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
FERROUS SULPHATE-Fe (Fe SO ₄ .H ₂ O)	670.00 gm	100.500 mg
ZINC SULPHATE-Zn	670.00 gm	100.500 mg
MANGANESE SULPHATE-Mn (Mn SO ₄ .H ₂ O)	268.00 gm	40.200 mg
POTASSIUM IODIDE(STAB)-I	3.35 gm	0.502 mg
COBALT CARBONATE-Co	3.35 gm	0.502 mg
COPPER SULPHATE-Cu	33.50 gm	5.025 mg
SODIUM SELENITE-Se	1.01 gm	0.151 mg

PORCOMEGA PIG GROWER SUPPLEMENT 005.

THEORETICAL ANALYSES TBA

D.E. KJ/Kg	CALCIUM %
CRUDE FIBRE %	PHOSPHORUS (Total) %
CRUDE PROTEIN %	
CRUDE FAT %	
LYSINE (Total) %	
LYSINE (Avail) %	
METHIONINE %	
METH. + CYSTINE %	
ARGININE %	
GLYCINE %	
ISOLEUCINE %	
LEUCINE %	
THREONINE %	
TRYPTOPHAN %	
HISTIDINE %	
PHENYLALANINE %	
PHENYL.+ TYROSINE %	
SERINE %	
VALINE %	
FATTY ACIDS	
LINOLEIC ACID %	
LINOLENIC ACID %	
w-3	
EPA %	
DHA %	

6. FORMULA PER TONNE PORCOMEGA* PIG FINISHER 006

	kg	%
PORCOMEGA* BASE SP	987.50	97.080
VITAMIN PREMIX PV 006	2.50	0.250
MINERAL PREMIX PM 006	10.00	1.000
	1000.00	100.000

USAGE :- 150 KG PER TONNE OF PIG FINISHER DIET 006.

PIG FINISHER VITAMIN PREMIX PV006

COMPOSITION

INGREDIENT	POTENCY / Gm FORMULA		ACTIVE
			/Kg PREMIX
VITAMIN A-500	500,000 IU	26.80 gm	13,400,000 IU.
VITAMIN D3-500	500,000 IU	5.36 gm	2,680,000 IU.
VITAMIN E-50%	500 IU	53.60 gm	26,800 IU.
VITAMIN K3	1000 mg	2.68 gm	2.68 gm
THIAMINE HYDROCHLORIDE USP	892 mg	3.00 gm	2.68 gm
RIBOFLAVIN 95% F.G.	950 mg	5.64 gm	5.36 gm
PYRIDOXINE USP	823 mg	4.88 gm	2.68 gm
VITAMIN B12-SUPPLEMENT 1%	10 mg	1.34 gm	13.40 mg
NIACIN USP	990 mg	18.95 gm	18.76 gm
CALCIUM d-PANTOTHENATE USP	920 mg	20.39 gm	18.76 gm
FOLIC ACID USP	920 mg	1.46 gm	1.34 gm
D-BIOTIN-SUPPLEMENT 1%	10 mg	13.40 gm	134.00 mg
GREEN TEA POWDER	1000 mg	120.00 gm	120.00 gm
VANILLIC CRYSTALS	1000 mg	4.02 gm	4.02 gm
WHEAT MEAL (CARRIER)	1000 mg	760.40 gm	
		1000.00 gm	

USAGE: 2.5 Kg per Tonne Porcomega* Finisher Supplement 006.

PIG FINISHER - PORCOMEGA* AND COMPLETE FEED VITAMIN ADDITION

COMPOSITION	ACTIVE	
	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
INGREDIENT		
VITAMIN A-500	33,500,000 IU	5,025 IU
VITAMIN D3-500	6,700,000 IU	1,005 IU
VITAMIN E-50%	67,000 IU	10.05 IU
VITAMIN K3	6.70 gm	1.01 mg
THIAMINE HYDROCHLORIDE USP	6.70 gm	1.01 mg
RIBOFLAVIN 95% F.G.	13.40 gm	2.01 mg
PYRIDOXINE USP	6.70 gm	1.01 mg
VITAMIN B12-SUPPLEMENT 1%	33.50 mg	5.03 mcg
NIACIN USP	46.90 gm	7.04 mg
CALCIUM d-PANTOTHENATE USP	46.90 gm	7.04 mg
FOLIC ACID USP	3.35 gm	0.50 mg
D-BIOTIN SUPPLEMENT 1%	335.00 mg	50.00 mcg
GREEN TEA POWDER	300.00 gm	45.00 mg
VANILLIC CRYSTALS	10.05 gm	1.51 mg

PIG FINISHER MINERAL PREMIX PM 006

COMPOSITION

INGREDIENT	POTENCY/GM	FORMULA	ACTIVE /Kg PREMIX
FERROUS SULPHATE (Fe SO ₄ .H ₂ O)	310.0 mg	216.125 gm	67.000 gm
ZINC SULPHATE	360.0 mg	186.110 gm	67.000 gm
MANGANESE SULPHATE (Mn SO ₄ .H ₂ O)	280.0 mg	95.715 gm	26.800 gm
POTASSIUM IODIDE(STAB)	68.8 mg	0.488 gm	0.335 gm
COBALT CARBONATE	460.0 mg	0.728 gm	0.335 gm
COPPER SULPHATE	250.0 mg	13.400 gm	3.350 gm
SODIUM SELENITE	400.0 mg	0.251 gm	0.101 gm
LIMESTONE CARRIER	1000.0 mg	165.330 gm	165.330 gm
		1000.000 gm	

USAGE: 10 Kg per Tonne Porcomega* Finisher Supplement 006

PIG FINISHER PORCOMEGA* AND COMPLETE FEED MINERAL ADDITION

COMPOSITION	ACTIVE	ACTIVE
INGREDIENT	/Tonne PORCOMEGA*	/Kg COMPLETE FEED
FERROUS SULPHATE-Fe (Fe SO ₄ .H ₂ O)	670.00 gm	100.500 mg
ZINC SULPHATE-Zn	670.00 gm	100.500 mg
MANGANESE SULPHATE-Mn (Mn SO ₄ .H ₂ O)	268.00 gm	40.200 mg
POTASSIUM IODIDE(STAB)-I	3.35 gm	0.502 mg
COBALT CARBONATE-Co	3.35 gm	0.502 mg
COPPER SULPHATE-Cu	33.50 gm	5.025 mg
SODIUM SELENITE-Se	1.01 gm	0.151 mg

26.

PORCOMEGA* PIG FINISHER SUPPLEMENT 006

THEORETICAL ANALYSES TBA

D.E. KJ/Kg
CRUDE FIBRE %
CRUDE PROTEIN %
CRUDE FAT %
LYSINE (Total) %
LYSINE (Avail) %
METHIONINE %
METH. + CYSTINE %
ARGININE %
GLYCINE %
ISOLEUCINE %
LEUCINE %
THREONINE %
TRYPTOPHAN %
HISTIDINE %
PHENYLALANINE %
PHENYL.+ TYROSINE %
SERINE %
VALINE %
FATTY ACIDS

LINOLEIC ACID %
LINOLENIC ACID %
w-3

EPA %
DHA %

CALCIUM %
PHOSPHORUS (Total) %

THIS PAGE BLANK (USPTO)